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five children, three of whom survive him. He is also survived by one sister, Miss Lillian Freeman Clarke.

Mr. Clarke was a man of great engineering ability, a clear thinker, an efficient organizer, a good administrator and a most lovable man. Before leaving his chosen profession for business, he had reached a position of preeminence in it, and in his business career he showed the same rare qualities. A host of friends mourned his passing.

GEORGE F. SWAIN.

WILLIAM GILSON FARLOW (1844–1919).

Fellow in Class II, Section 2, 1874.

It is certainly presumptuous for one not a botanist to write about Dr. Farlow, but an intimate friendship of over 50 years makes it possible for me to speak of him as a man, and I hope I have succeeded in presenting an adequate picture of his botanical achievements by constructing a mosaic from the facts and opinions of the four experts, who have written about him already.

By the death of William Gilson Farlow the Academy has lost one of its most distinguished fellows, since it was his rare good fortune to begin his scientific work, when a great body of material had been collected by such pioneers as Curtis in fungi, Harvey in algae, Tuckerman in lichens, Sullivant in mosses and many others, and the science in this country had reached the point where it needed some man with breadth and grasp enough to draw all these scattered parts into a connected whole. In Farlow it found the genius, enthusiasm and character needed for this great work and the training, which developed and supplemented these natural gifts. He occupies, therefore, the same commanding position in cryptogamic botany that Asa Gray holds in the development of our knowledge of flowering plants.

He was born in Boston December 17, 1844, the son of John Smith Farlow, a prosperous public-spirited citizen and Nancy Wight (Blanchard) Farlow, both of Massachusetts parentage. From his father he inherited strong tastes for botany and music. In fact, John K. Paine, then recently established in Cambridge, urged him to become a professional musician, but the call of botany was too strong and music sank into a delightful recreation after his exacting scientific work.

He was educated at the Quincy Grammar School and English High School in Boston, followed by a year at the Boston Latin School, which with his training in Harvard College made him a sound classical scholar. In after years he was fully alive to the greater breadth of view and roundness of intellect given him by this training in the humanities, as well as to the value of his Latin and Greek in giving him a mastery of the force of scientific terms and names.

It is said that his attention was first drawn to botany when a boy by finding hepaticas in the woods near his father's place in Newton. However this may be, he made such rapid progress in the science that by his senior year we lower classmen spoke of him with bated breath as a prodigy of botanical learning.

This progress was largely due to the fact that in college he encounttered the first of his two great teachers — Asa Gray, who gave him a solid foundation for his later professional studies; but instead of embarking on these at once after his graduation in 1866, following the advice of Asa Gray, he took up the study of medicine, and after studying anatomy for a year under Jeffries Wyman — a man whose casual talk was a liberal education, he entered the Harvard Medical School in November, 1867, and graduated from it in 1870, securing before his graduation the coveted appointment of surgical interne at the Massachusetts General Hospital under that great surgeon, Henry J. Bigelow; so that he took up his higher botanical studies with a much more rounded general education than falls to the lot of most scientific men, the effect of which could be traced throughout his life in his unusual sanity and breadth of view.

In 1870 he began his special botanical education by serving for two years as assistant to Asa Gray, whose inspiring teaching gave him a comprehensive knowledge of flowering plants and made him thoroughly familiar with the systematic outlook on the science, while his example helped to make him a botanist in the broadest sense of the word, instead of a mere specialist on the cryptogamic side.

Even at this early day he had selected his line of work — the cryptogams — and began to study the algae in the herbarium at Cambridge and also in the field at Woods Hole, where in 1871 he joined a scientific party under S. F. Baird, publishing in this year his first paper "Cuban Seaweeds."

At that time there were no facilities in America for studying cryptogams, so again following the advice of Asa Gray, he decided in 1872 to go to Europe, where he spent the better part of two years in study at Strassburg under Anton De Bary, then the first authority on fungi in the world. He was very fortunate in working under two such men as De Bary and Asa Gray, each a master in his own field, and these lay so far apart, not only in matter, but in methods of treatment, that he gained from them a remarkably broad and comprehensive grasp of the science.

It was indeed a new botanical atmosphere into which he was plunged at Strassburg. Systematic botanists were spoken of scornfully as "hay collectors," and with the zeal of new converts most German botanists prided themselves on their ignorance of flowering plants. De Bary himself was not free from this sort of narrowness, but Asa Gray had impressed the importance of systematic work and flowering plants so thoroughly on Farlow, that he did not allow himself to be swept off his feet even by the flood of new ideas with which he was continually deluged by De Bary and the eminent students he had drawn about him, such as Graf Solms and Rostafinsky.

When I heard Farlow talk with De Bary in the Strassburg laboratory I heard two naturalists discussing the question on equal terms, except for the greater knowledge and experience of the older man — a very striking contrast to the state of almost abject pupilage, in which we chemical students were kept by our German professors. The difference lay, of course, in the students, not in the professors.

During his stay with De Bary he grew familiar with the whole field of work in the morphology and development of fungi and in plant anatomy, and toward the end of the time published a paper on "An Asexual Growth from the Prothallus of Pteris cretica," which was attacked so heartily that he returned to America with his reputation made.

Although the larger part of his time in Europe was spent with De Bary, he gave shorter periods of study to lichens under J. Mueller at Geneva, and to algae with Bornet and Thuret at Antibes, and travelled extensively, visiting most of the celebrated botanists and herbaria.

These years of study in Europe brought his education to an end and made him, so far as is known, the only American cryptogamic botanist capable at that time of doing original work himself and of teaching it to advanced students. More than this, they put the finishing touch to the cultivation of the qualities that made him great — his strong and piercing intelligence, his phenomenal memory, the discriminating judgment and devotion to truth that made him refuse to accept conclusions, until they were absolutely established, and the unusual breadth of view so often mentioned already. To these must be added an insatiable love of work, as well as great and constantly increasing stores of learning.

As soon as he reached America his appointment as Assistant Professor of Botany in Harvard University put him in a position to make the most of these treasures and to raise cryptogamic botany in the United States from a mere sketchy appendix in a general course of botany to the rank of an independent study.

For five years he was stationed at the Bussey Institution of Harvard University, although his teaching was in the college, and then in 1879 he was transferred to Cambridge as Professor of Cryptogamic Botany.

These five years at the Bussey Institution, however, had an important influence on his life as well as on the botanical development of the country, since they called his attention to the fungous diseases of plants, and he threw himself into work in this virgin field with such energy that he is acknowledged as one of the founders of phytopathology in the United States — a study which has since reached such proportions that we lead the world in it at present.

His papers in this field are numerous and important. Among them may be mentioned studies of potato rot, grape mildew, black knot, onion smut, gymnosporangia, fungous diseases of hollyhocks, roses, and even of salted codfish.

After he was settled in Cambridge, his plans included the establishment of a herbarium and a library of cryptogamic botany, in addition to the teaching and research properly belonging to his professorship.

The first step towards his herbarium had been taken even before his return from Strassburg, as then Asa Gray bought for him the famous collection of fungi made by the Rev. M. A. Curtis. To this nucleus were added later many other famous collections, which had been either bequeathed to the University, or purchased by him. Conspicuous among them were Tuckerman's lichens, Sullivant's, James's, and Kennedy's mosses and hepatics, Faxon's sphagna, and, quite as important as these, his own rich collections of fungi and algae. His father's wealth enabled him also to make his library — like his herbarium — the fullest and best in the country and both were always open to botanists qualified to use them.

As a lecturer he was peculiarly happy, for to the authority of a master he added a clear style, the faculty of bringing essential points into strong relief, and a humorous quality, which riveted the attention of his hearers; but even more important than his lectures was his work with students in research. Here his inspiring personal teaching — for he never left them to an assistant — developed many distinguished students, among them such masters as Roland Thaxter, William Trelease, W. A. Setchell, Kingo Miyabe, and Herbert M. Richards.

His scientific papers average three a year for the whole forty-five years of his active work, if the papers of his students are included, as they should be. They have been characterized as "clear, concise and accurate," the well-considered careful utterances of a master, who never yielded to the temptation of rushing into print, and also was chary of establishing new species out of the great wealth of material at his disposal, since he had a profound contempt for bad species, as shown by his caustic remark about the manufacturers of them.

"If a difference can be *imagined,* it is a new species; if it can be seen, it is a new genus."

Nearly two-thirds of his papers have to do with fungi, including the studies of plant diseases already mentioned; while somewhat less than one-third deal with algae, many of these with the contamination of water supplies by them. One published in 1879 was reprinted 38 years later by Professor Whipple as "one of the classics of state sanitation." It is written in a popular style, as are several of his papers on fungi.

Other useful papers consist of reports on the cryptogams collected by various exploring expeditions and of lists of cryptogams found in special localities. For example, a list of the seaweeds of the New England coast, (published in 1881) "included keys, descriptions, critical notes and plates," and according to Professor Riddle "still remains our only scientific manual of the seaweeds of this region."

Quite as important as this was the "Provisional Host Index of the Fungi of the United States" published in 1888 and 1890 with Mr. A. B. Seymour, which has proved of the greatest use to working botanists.

Of his bibliographical papers the most important was a "Bibliographic Index to North America Fungi," of which the Introduction and the first 312 pages, prepared in collaboration with Mr. A. B.

Seymour, were published by the Carnegie Institution in 1905 and although the publication has not been continued, the collection of data went on until his death. This was perhaps his greatest work, and some idea of its magnitude can be obtained from the facts that at the time of his death the Index included about 350,000 references, and the 312 pages published in 1905 brought the alphabetical list of that day only through Badhamia. As the work is essentially finished, it is hoped that it may soon be published since it will be of untold value to specialists.

Another great work left unfinished at his death is an account of selected species of American fleshy fungi, which was to be illustrated with over 100 colored plates. These have been executed under his direction with the utmost care, but although the plates were finished, the pressure of his other botanical undertakings prevented him from even beginning the descriptions of the species. It would be well, if these descriptions could be supplied by another hand, so that what promises to be a classical work may see the light.

In discussions of nomenclature he threw his powerful influence in favor of sane and stable methods for naming fungi, thus helping to check the extreme radicalism of many American botanists, and preserving relations with the better men abroad.

But his papers alone — important as they are — did not make him "the creator of cryptogamic botany in the United States." It was the man himself — his personality, his breadth, his wise conservative judgment, his learning, his helpfulness, and his devotion to truth.

American botanists were brought in contact with this commanding influence by means of his papers and his students and even more effectively by his direct personal intercourse with them, for he was always ready to give them generous help, and they were more than ready to make use of it, submitting their puzzles to his excellent judgment, reinforced as it was by a reading that covered the whole literature of the cryptogams, not in abstracts, but in the original sources; borrowing specimens from his herbarium for comparison; asking him to look up references in journals hard to find outside his library; or even sending him specimens to determine. Some idea of the volume of this work is given by the fact that a single correspondent confesses to 100 letters in his own handwriting.

His achievements earned wide recognition. Two genera were named after him, Farlowia among the algae, and Farlowiella among the fungi, beside a great number of species. Harvard, Wisconsin and Glasgow conferred the degree of LL.D. upon him, and Upsala on the two hundredth anniversary of the birth of Linnaeus, at which he represented our Academy, crowned him with laurel as one of its Doctors of Philosophy.

He was elected a fellow of our Academy in 1874, and was also a member of the National Academy of Sciences, the Philosophical Society, the Linnaean Society and the French Academy of Sciences. He served as president of the New England Botanical Club, of which he was one of the founders, of the American Association for the Advancement of Science; of the American Society of Naturalists, and of the Botanical Society of America.

There is little more to be said about his life, which was passed in Cambridge during term time, with the exception of a few journeys to Europe and botanical excursions on this continent, the most important being one to Mexico and California with Asa Gray in 1885. Most of his work in the field, however, was done in the White Mountains, where his vacations were usually passed. A walk in the woods with him introduced one to a new world largely microscopic, but full of interest and even beauty.

In 1900 his marriage to Miss Lilian Horsford made his life one of complete happiness until his death on June 3, 1919.

Farlow's most striking characteristic — apart from those I have already pictured in connection with his scientific work — was the humor which permeated and irradiated all he said, making even his common talk amusing and delightful, but this humor is so elusive that it evaporates between the pen and paper, so that I can refer to no example of it. On the other hand, his wit often flashes out in all but his most serious papers.

His hatred of affectation, sham and superficiality was intense, and his outspoken denunciation of them, driven home by his incisive humor, made so deep an impression that many, who knew him mostly by hearsay, thought him a sarcastic pessimist, but his friends saw that his attacks were directed only against those who deserved them, and knew that the real nature of the man was affectionate and kindly, making him the most staunch and faithful of friends, and the sympathetic helper even of those who had no claim on him whatever.

It is pleasant to think of his declining years when full of well-earned honor, happy in his troops of friends, happier in his family with his mind undimmed by any weakening of his faculties, he was able to continue in active work until the brief sickness, which brought the end.

Charles Loring Jackson.

JULIUS VON HANN (1839–1921).

Foreign Honorary Member, Class II, Section 1, 1902.

Nearly half a century ago Julius von Hann began to take his place as the universally acknowledged leader of meteorological science, and for many years previous to his death he stood out head and shoulders above his fellow-workers. He grew up with and himself was, as it were, a large part of the rapid modern development of meteorological science. He was able, through his intense application and industry, and because of his great intellectual powers, not only himself to contribute largely to the advance of his science but also to keep closely in touch with all the work which was being done by investigators and writers everywhere. For years his many contributions to the *Meteorologische Zeitschrift,* often modestly signed J. H., were never-failing evidence of his truly extraordinary grasp of his subject and of the universal range of his reading. He was, as fully as any one human being can be, a living encyclopedia of his chosen science. And this is in no sense to be taken as suggesting that his mind was merely a storehouse of dry, hard facts. He was very human. He saw the many and varied relations of meteorology and climatology to human life and activities, and he was always on the lookout for opportunity to emphasize these relations. His writings were always clear, vivid, and interesting. His "Handbuch der Klimatologie," for example, which inevitably has to deal largely with "dry" statistical details, is enlivened throughout by carefully selected, vivid, first-hand descriptions of weather types and of human or botanical responses to the climatic environment.

His fellow-workers who remain are dynamic or physical meteorologists, or climatologists, or are specializing in this or that subdivision of their science. This is a natural and inevitable situation at the present